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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,475	03/30/2004	Hiroshi Suzuki	16869N-111600US	7769
20350 7590 11/28/2007 TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			EXAMINER DILLON, SAMUEL A	
			ART UNIT 2185	PAPER NUMBER
			MAIL DATE 11/28/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/814,475

Applicant(s)

SUZUKI ET AL.

Examiner

Sam Dillon

Art Unit

2185

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-13 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-13 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Examiner acknowledges the applicant's submission of the amendment dated September 19, 2007. Per the amendment, Claims 1, 2, 9, 11 and 15 have been amended. The instant application having Application No. 10/814,475 has a total of 13 claims pending in the application; there are 5 independent claims and 8 dependent claims, all of which are ready for examination by the examiner.

I. RESPONSE TO AMENDMENT(S) / ARGUMENT(S)

2. Applicant's arguments with respect to the 35 U.S.C. 103(a) rejections of Claims 1-3, 5-13 and 15 have been fully considered and are **persuasive**, but are moot in view of the new ground(s) of rejection, as described below. The Examiner notes that the included grounds of rejections are similar to those given in the Final Office Action mailed on March 24, 2006.

II. REJECTIONS BASED ON PRIOR ART***Claim Rejections - 35 USC ' 103 – Hubis and McIlroy***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-3, 5-7, 9-12 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hubis et al (US Patent Number 6,343,324) in view of McIlroy et al. ("Multilevel Security in the UNIX Tradition").

5. As per **Claims 1, 2, 9, 11 and 15**, but more specifically to Claim 1, Hubis discloses an input/output management system for managing input or output from or to a disk device (*Hubis*,

Art Unit: 2185

disk drive storage array, column 3 lines 62-65) connected to an operating computer (host 1, Figure 2A), comprising:

a connection information definition block (*NURAM 182, Figure 2A*) in which the relationship of logical connection (*port mapping table entry 190, Figure 2B-3*) between said operating computer and a logical volume (*logical volume, column 10 line 33*) included in said disk device or a logical area (*logical volume, column 10 line 33*) in a logical volume (*physical disc drive, column 10 line 32*) is defined using computer identification information (*I/O processor N, figure 2B-3*) included in a computer identification information definition division (*figure 2B-3*); and

an input/output execution control block (*processor 180, Figure 2A*) that controls, based on the computer identification information, whether said operating computer is enabled to access a logical volume included in said disk device or a logical area in a logical volume (*column 4 lines 6-8*).

Hubis does not disclose wherein said connection information definition block includes a logical volume connection information specification division in which a connected state value concerning the connection of said computer is specified in relation to each logical volume included in said disk device or each logical area in each logical volume included in said disk device, and also wherein the input/output execution control block appends an access key having a value to an input/output request to or from said disk device, wherein in the event that said access key value is equal to or smaller than said connected state value, input/output to or from said disk device is enabled, and wherein in the event that said access key value is greater than said connected state value, input/output to or from said disk device is disabled.

McIlroy discloses

Art Unit: 2185

a connected state value (*ceiling, section 2, paragraph 1 line 3*) concerning the connection of said computer (*process, section 2, paragraph 1 line 3*) is specified in relation to each logical volume (*file system, section 2, paragraph 1 line 3*),

wherein the input/output execution control block appends an access key having a value to an input/output request to or from said disk device (*label, section 2, para. 1*)

wherein in the event that said access key value is equal to or smaller than said connected state value, input/output to or from said disk device is enabled (*when a process level is lower than the storage label the communication may proceed, otherwise it will not, section 2 paragraph 1*), and

wherein in the event that said access key value is greater than said connected state value, input/output to or from said disk device is disabled (*when a process level is lower than the storage label the communication may proceed, otherwise it will not, section 2 paragraph 1*).

Hubis and McIlroy are analogous art in that they both deal with the Unix operating system (*see Hubis, column 1 lines 41-43, and McIlroy, section 1, paragraph 1 line 1*) and validating authorization to access files (*see Hubis, column 3 lines 52-59, and McIlroy, section 1, paragraph 2 lines 1-2*). At the time of the invention it would have been obvious to one having ordinary skill in the art to implement McIlroy's secure system by adding labels to Hubis' port mapping table.

The motivation for doing so would have been that the McIlroy's system provides sound, practical security (*abstract, lines 3-5*) and uses security labels to classify information for purposes of privacy and integrity (*abstract, lines 5-7*).

Therefore, it would have been obvious at the time of the invention to implement Mcllroy's security labels on Hubis' volume management system for the benefit of practical security and for purposes of privacy and integrity, to obtain the invention of Claims 1, 2, 9, 11 and 15.

6. As per Claim 3, Hubis and Mcllroy disclose an input/output management system according to Claim 1, wherein said computer identification information definition division (*host computer ID map data structure, column 4 lines 10-11*) defines physical identification information (*host computer ID, column 4 line 10*) that uniquely indicates said computer connected to said disk device is defined.

7. As per Claim 5, Hubis and Mcllroy disclose an input/output management system according to Claim 2, wherein said input/output execution control block controls whether each of said computers that share the same physical input/output path can access a logical area in a logical volume included in said disk device (*Hubis, column 4 lines 6-8*).

8. As per Claim 6, Hubis and Mcllroy disclose an input/output management system according to Claim 1, wherein said connection information definition block comprises:

Wherein said-computer identification information defines the relationship of logical connection (*port mapping table entry 191, Figure 2B-3*) between said computer and a logical volume included in said disk device is defined using port numbers (*i/o processor number column in port mapping table, Figure 2B-3*) assigned to the ports of said disk device connected to said computer (*port 114-1 through port 114-M in Figure 2A*).

9. As per Claims 7 and 12, but more specifically to Claim 7, Hubis and Mcllroy disclose an input/output management system according to Claim 1, wherein the computer identification information is used to control whether each of a plurality of application programs running in said operating computer is enabled to access a logical volume included in said disk device or a

Art Unit: 2185

logical area in a logical volume (*Hubis discloses controlling the connection of a computer to a disk device, which includes controlling the connection of any applications the computer is running, column 4 lines 6-8, where the plurality of applications could be subsets of instructions of whatever application the computer is running*).

10. As per **Claim 10**, Hubis and McIlroy disclose an input/output management method according to **Claim 9**, wherein

the computer identification information contains physical identification information (*host world wide name list 153, Figure 2B-1*) that uniquely indicates said computer connected to said disk device.

Claim Rejections - 35 USC ' 103 – Hubis, McIlroy and Tang

11. **Claims 8 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hubis et al (*US Patent Number 6,343,324*) and McIlroy et al. ("*Multilevel Security in the UNIX Tradition*") as applied to **Claims 7 and 11** above, and in further view of Tang et al ("*Load Distribution via Static Scheduling and Client Redirection for Replicated Web Servers*").

12. As per **Claim 8**, Hubis, McIlroy and King disclose an input/output management system according to **Claim 7**, wherein

a plurality of pieces of computer identification information (*Hubis, port mapping table entry 191, Figure 2B-3*) defining whether said computer or each of said application programs (*subsets of program running on Hubis's host*) can access a logical volume included in said disk device or a logical area in a logical volume (*column 4 lines 6-8*).

Hubis and McIlroy do not expressly disclose the system further comprising a schedule definition division containing said plurality of pieces of computer identification information being

Art Unit: 2185

specified in relation to respective time zones, and in which a schedule for automatically changing the plurality of pieces of computer identification information is predefined.

Tang discloses a system comprising a schedule definition division containing a plurality of pieces of computer identification information (*hostname/IP address, section 2.1 line 3*) being specified in relation to respective time zones (*period of T_s , section 2 item 2 line 3*), and in which a schedule for automatically changing the plurality of pieces of computer identification information is predefined (*section 2 item 2*).

Regarding the limitation "a schedule definition division", Tang discloses a scheduler generating and storing assignments between client networks and assigned servers (*section 2.2 lines 1-2*). Although not expressly mentioned, it is inherent in the storing operation for the scheduler to store the assignments in an accessible way in memory. Assignments stored in an accessible way in memory can be considered a data structure, and this data structure subsequently fulfils the limitation of a schedule definition division.

Hubis, McIlroy and Tang are analogous art in that they deal with managing the connection relationship between clients accessing data from one of a plurality of storage locations. It would have been obvious to someone with ordinary skill in the art to schedule connections in Hubis and McIlroy's storage system with Tang's scheduler.

Tang discloses that using a scheduler allows user-specific data to be migrated or located at a specific storage location (*section 1 paragraph 3 lines 11-13*) while still keeping the load on each storage location balanced (*section 1 paragraph 3 lines 13-14*).

Therefore, it would have been obvious to combine the storage system taught by Hubis and McIlroy with the scheduler taught by Tang for the benefit of minimizing data replication and balancing the load on each storage location, to obtain the invention as specified in Claim 8.

Art Unit: 2185

13. As per **Claim 13**, Hubis and McIlroy disclose an input/output management method according to Claim 11, wherein a plurality of pieces of definition information (*port mapping table entry 191, Figure 2B-3*) define whether said computer or each of a plurality of application programs running in said computer can access a logical volume included in said disk device or a logical area in a logical volume (*column 4 lines 6-8*). Hubis and McIlroy do not disclose the plurality as being automatically switched with the start of each of time zones according to a predefined schedule.

The limitation “*said computer or each of a plurality of application programs running in said computer*” can be fulfilled by one or more of the limitations “*said computer*” or “*each of a plurality of application programs running in said computer*”.

Tang discloses a plurality of pieces of definition information as being automatically switched (*section 2 item 2 lines 3-5*) with the start of each of time zones (*period of T_s , section 2 item 2 line 3*) according to a predefined schedule (*section 2 item 2*).

Hubis and Tang are analogous art in that they deal with managing the connection relationship between clients accessing data from one of a plurality of storage locations. It would have been obvious to someone with ordinary skill in the art to schedule connections in Hubis and McIlroy's storage system with Tang's scheduler.

Tang discloses that using a scheduler allows user-specific data to be migrated or located at a specific storage location (*section 1 paragraph 3 lines 11-13*) while still keeping the load on each storage location balanced (*section 1 paragraph 3 lines 13-14*).

Therefore, it would have been obvious to combine the storage system taught by Hubis and McIlroy with the scheduler taught by Tang for the benefit of minimizing data replication and balancing the load on each storage location, to obtain the invention as specified in Claim 13.

Art Unit: 2185

Though not required for the current rejection, the Examiner notes that as per the rejection of Claim 7, King ("*Operating System Support for Virtual Machines*") discloses a computer (*computer system, section 1 paragraph 1 lines 2-3*) including a plurality of applications (*guest applications, figure "Type I VMM"*).

IX. CLOSING COMMENTS

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office Action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP ' 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

a. STATUS OF CLAIMS IN THE APPLICATION

15. The following is a summary of the treatment and status of all claims in the application as recommended by M.P.E.P. ' 707.07(i):

a(1). CLAIMS NO LONGER IN THE APPLICATION

16. Claims 4, 14 and 16-20 were cancelled by amendment.

Art Unit: 2185

a(2). CLAIMS REJECTED IN THE APPLICATION

17. Per the instant office action, Claims 1-3, 5-13 and 15 have received an action on the merits and are subject of a final action.

b. DIRECTION OF FUTURE CORRESPONDENCES

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Dillon whose telephone number is 571-272-8010. The examiner can normally be reached on 9:30-6:00.

19. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sanjiv Shah can be reached on 571-272-4098. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

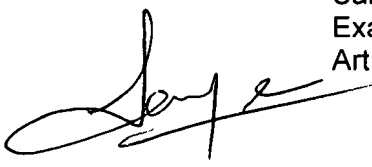
IMPORTANT NOTE

20. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



SAD

Sam Dillon
Examiner
Art Unit 2185



SANJIV SHAH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100